

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 60-070783

(43)Date of publication of application : 22.04.1985

(51)Int.Cl.

H01L 33/00

(21)Application number : 58-181708

(71)Applicant : SHARP CORP

(22)Date of filing : 27.09.1983

(72)Inventor : MIHASHI YOSHIZO  
MIYATA MASATAKA  
KOBAYASHI MASANAO

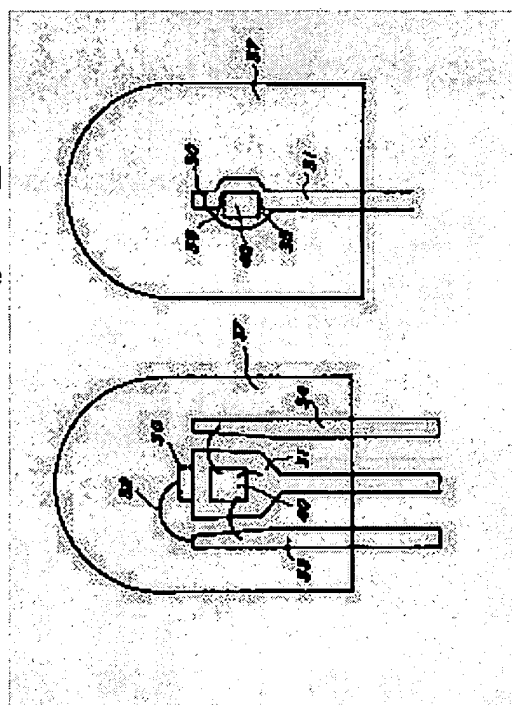
## (54) DISPLAY DEVICE BY LIGHT-EMITTING DIODE

### (57)Abstract:

**PURPOSE:** To miniaturize a display device by each mounting a light-emitting diode element and an IC for driving the element to the top section of a lead frame and the recessed section of the side surface of the lead frame, sealing the element, the nose section of the frame and the IC with a black resin and molding them with a dark group resin.

**CONSTITUTION:** A lead frame is constituted by three legs, and the width of a lead piece 31 at the center is widened. A recessed section 36 is formed at the central section, and a light-emitting diode element 30 is mounted to the top section of the lead piece 31. An Al wire 32 is bonded between an electrode for the light-emitting diode element 30 and a lead piece 33, and an

IC 40 is mounted in the recessed section 36. The IC 40 is sealed with a black resin 35, and the light-emitting diode element 30 and the IC 40 are molded with a dark red resin 37 because the light-emitting diode element infrared-ray emits. Since the IC 40 is molded with the dark red resin, the light emission of the light-emitting diode element 30 is transmitted, and the projection to the IC 40 of external rays is prevented.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office